spatial and temporal scales. As with the other volumes in the series, this book is aimed at a wide range of readers within the environmental sciences.

Chapter 1 provides a general introduction to the topic, commenting on pesticide usage in the US and setting out a useful summary of review articles published between 1964 and 1994 on the chemical and physical processes undergone by pesticides and related compounds in the atmosphere.

Chapter 2 is largely devoted to the tabulation of the available published literature into a digestible format. Three tables, each reporting on a number of key selected features/characteristics conveniently categorise the studies according to type as follows: (a) pesticide processes and matrix distribution studies; (b) local and state monitoring; and (c) national and multistate monitoring. Although data are reported for a number of pesticide classes, predictably, most of the information available relates to organochlorine pesticides because of the long-standing environmental concerns associated with these particular compounds.

Chapter 3 examines national trends and distribution patterns concluded from the reviewed literature for the major pesticide classes and, in particular, organochlorine, organophosphorus and other insecticides, triazines and acetanilide herbicides. The authors' ability to undertake an analysis of the available data in the context of long-terms trends has been restricted because of the limited number of national and large-scale regional studies undertaken in the last 30 years. Despite these problems the authors have drawn sensible conclusions in cases where there are sufficient data.

Chapter 4 provides an overview of the principal factors influencing the occurrence and distribution of pesticides in the atmosphere. Consideration is given to sources of pesticide contamination, transport processes and the mechanisms of transformation and removal from the atmosphere. The treatment, whilst not being overly detailed, is pitched at a level which provides a good general introduction to the processes governing pesticide movement.

There follows in Chapters 5, 6 and 7 a discussion of the key issues raised in relation to the national distribution patterns and trends observed for pesticide concentrations in the atmosphere and their impact on surface and ground water bodies. The three chapters deal respectively with: (a) pesticide sources and transport; (b) phases, properties and chemical fate; and (c) the environmental significance of pesticides in the atmosphere. These issues are dealt with adequately in the light of the information available, although perhaps the section on the significance to human health could have benefited from a slightly more in-depth treatment.

Overall, the book is well balanced, provides a good overview of the subject matter and would be a welcome addition to the bookshelf of those with a keen interest in the environmental sciences. The extensive bibliography of approximately 350 references provides the material required for those wishing to delve into the subject in greater depth.

G. H. Merson

Urban entomology: insect and mite pests in the human environment. William H. Robinson, Chapman and Hall, London and New York, 1996, xv + 430 pp., price UK£24.99.
ISBN 0-412-60750-6

The concept of urban entomology as a discipline distinct from agricultural or medical entomology was due to Professor Walter Ebeling of the University of California who defined the subject area in his classic text as the study of those insects which have adapted to man's domestic and urban environment and which present a direct threat to his health or the fabric of his property—or which limit an aesthetic enjoyment of his domestic surroundings. Most insect groups which would normally be included in text-books of medical entomology are within its compass, as well as nuisance pests such as cockroaches, wasps, spiders and ants, the structural pests—termites, wood-boring beetles and some wasp and ant species—and pests of the managed urban environment—gardens and parks. Perhaps what distinguishes the subject most clearly from medical or agricultural entomology is in the way it focuses on man's social biology, the manner in which he constructs domestic and urban environments and his cultural attitude to insects in his home, workplace or garden. Insects may cause distress and provoke control measures simply because they cross the domestic threshold uninvited, disobeying one of the cardinal rules of human societies throughout the world. The damage which they cause to health or property may in some cases be second issues.

In the twenty or so years since the publication of Ebeling's book, the study of urban entomology has gained widespread acceptance in the United States. This is perhaps not surprising in view of the large sums spent each year on insecticides and related products designed to rid buildings of uninvited insect visitors. One estimate put the US professional and consumer market for pesticides used for this purpose at about $1.1 billion in 1991. Europe, which has similar urban pest problems, has possibly not yet afforded the subject the status of the traditional entomological disciplines, perhaps reflecting differing cultural attitudes to domestic pest problems across the continent. The first two meetings of the International Congress on Insect Pests in the Urban Environment (1994, 1996) were held in the United Kingdom and the next will be held in Prague in 1998, reflecting an increasing level of interest at a professional and research level.

William Robinson's book is aimed primarily at an undergraduate audience with little or no entomological background. It is an introductory text, necessarily limited in scope and depth but which presents the essential features of the biology of the important insect groups. Most importantly for a book of this type it is highly readable—the author illustrates his points by drawing on a wealth of entomological experience from the United States, China, Japan and Europe gained over the 23 years he has taught the subject to students at the Virginia State University. The first part of the book traces the development of human societies through primitive village cultures to the modern western city, and demonstrates how a diversity of domestic living arrangements can lead to different patterns of insect infestation and health-related problems. The theme of defensible ('sacred') space is developed to underline the importance of emotional and cultural reactions to insects in defining how people choose to deal with them. The second part covers domestic pests, including those of stored foodstuff, and the third part deals with peridomestic pests such as flies (including vector mosquitoes), ants and wasps. The final part of the book covers the biology and control of structural pests. Pest control is presented in terms of general strategies rather than specific technologies, which tend to vary with country and can change rapidly over time. A short bibliography is given at the end of each chapter—a more realistic approach in a student text than providing extensive reference lists. I found this a useful book which achieves its aims of providing a broad introduction to the subject, and I would recommend it to students interested in this important and developing area of entomology.

Geoff le Patourel

Fundamental toxicology for chemists. ed. J. H. Duffus & H. G. J. Worth, Royal Society of Chemistry, Cambridge, 1996, 327 pp., price UK£29.50.
ISBN 0-85404-529-5

Chemists rank high among those on whom recent regulations concerning Safe Handling of Chemicals and Health and Safety at Work impinge. Problems of toxicity of chemicals arise not only in manufacture of intermediates and end-products but also in user situations in industry, agriculture and the home. This multi-author book is not intended to prepare chemists to be toxicologists but to render them able to make judgements or give advice concerning chemicals encountered in the execution of their profession. Individual chapters are related in some degree to a skeletal proposed curriculum (set out in an Appendix) drafted by the IUPAC Commission on Toxicology and the IUPAC Committee on the Teaching of Chemistry. The chapters related to general principles serve a proposed 30-student-hour 'core' course and cover in adequate detail the basics of exposure routes, chemical interactions, dose-response, toxicokinetics and dynamics (biotransformation, activation, degradation and disposal of chemicals), design of toxicity studies, data interpretation, risk assessment and management, monitoring methods and safe handling. These chapters impart little comprehension of the underlying biochemical processes involved. With an excellent 77-page Glossary of Terms used in toxicology, they occupy about half the book. Of varied breadth and quality are the remaining chapters (said to relate to a further 20-student-hour study course) about target systems or organs (skin, lung, genetic material, etc.) on only two groups of chemicals (radionuclides and Biocides and Pesticides). On selective reading, I found the chapter on skin toxicity brief and uninformative, but that on lung to be a clear biological introduction with illustrations. A well-written but highly compressed six pages on neurotoxicity contrasts with an unsuitably elaborate 20-page discourse on behavioural toxicology. A nine-page chapter on Biocides and Pesticides lists 14 classes but draws all its examples from only one, with detailed explanation of the mode of action of three insecticides, each of which affects the nervous system. Thus, as chapters to chase through once in order to get a partial picture of the flesh on the skeleton of general principles, this half of the book serves chemists indifferently: a firmer editorial hand would have been an advantage. Each chapter has a Bibliography but I would have liked to see a listing of the bigger and better reference books, both for processes underlying interaction of chemicals with biological systems, and those concerning toxicology of a wider range of chemicals. Thus, in those areas with which I am most familiar, the chemist needs to know of Spencer and Schaumburg's classic compendium 'Experimental and Clinical Neurotoxicology', and for pesticides, it is surprising to find no mention of the Publisher's own standard reference work, 'The Agrochemical Handbook' (based on an earlier German text, presumably known to the author).

In the UK and elsewhere, there are several undergraduate texts available to enquirers into toxicology. This one does not fully justify its title of 'Fundamental': it may serve to satisfy the curious chemistry student, although the depth of pharmacokinetics presentation could be daunting. A practising chemist who meets actual problems of toxicity would need other texts to supplement the better parts of this one.

M. K. Johnson